

CITY OF NEVADA CITY
US EPA BROWNFIELDS CLEANUP GRANT PROPOSAL
PROVIDENCE MINE: MINING FEATURES AREA AND TAILINGS PILE

1. Community Need

a) Health, Welfare and Environment

The City of Nevada City is a small and well-preserved town in the historic Gold Rush region of California's Sierra Nevada mountain range. After gold was discovered in the region in 1849, thousands of prospectors arrived in the once-pristine hills in search of their fortune. Nevada City and hundreds of other communities sprang up overnight as mining camps. Mining formed the basis of the area's economy for one hundred years, until the industry's decline after World War II. Nevada City's scenic natural beauty and carefully restored historic downtown now draw thousands of visitors to the area every year. The Nevada City area is a magnet for visitors who are drawn to the small town for its lively arts scene, many street festivals and concerts, trails and rivers. Among all the scenic beauty, however, Nevada City's many former gold mines lie abandoned, posing a severe threat to human and environmental health. Providence Mine, located in Nevada City a half mile from downtown on the banks of Deer Creek, was a highly productive gold mine from which \$20 million worth of gold was extracted between 1851 and 1919. Once abandoned, the mine structures and shaft were left to crumble, and forest took over the once bustling industrial site. The 45.25 acre parcel on which the mine sits was acquired by the city for use as open space in 1981, and is now used by residents for hiking and fishing access, a use in keeping with the rural character of the town.

Unlike other Brownfields, which may consist of abandoned industrial structures in an urban setting, abandoned mine lands typically consist of areas of undeveloped and often remote land strewn with toxic industrial waste. Abandoned mine land is frequently left as open space because development is impractical – the land is either too contaminated or too rugged for development. Informal recreational use evolves on what is often the only available open space, exposing users to the toxic legacy of long-abandoned mining operations. The local climate – characterized by a four month period from June to October in which there is typically no rainfall – exacerbates the threat to human health by creating the dusty conditions associated with the dry western states. Contaminated dust is a primary means of accidental ingestion by humans and poses a serious threat to recreational users.

i. Effect of Brownfields on Community

Nevada City's Brownfields sites consist primarily of abandoned gold mines. These Brownfields have an impact on the community as "attractive nuisances", with unsafe mine shafts posing a safety concern. The sites are also a source of serious contamination in the form of heavy metals including lead, arsenic, and cadmium that were left behind in the mining process. The cleanup of the Providence Mine site in the Deer Creek watershed is a critical step in opening it to recreational access. The City of Nevada City and a consortium of seven local organizations are in the process of developing the Deer Creek Tribute Trail and Restoration Project, and have received funds from The California Resources Agency River Parkways Grant Program for the trail on River Right, across the creek from the mine site. Trail construction has begun and is expected to be complete by spring 2011. Funding for the River Left trail,

which includes the Providence Mine site and which will connect with the River Right trail to make a nine mile loop, has been secured from the Sierra Nevada Conservancy Strategic Opportunity Grant Program. The Tribute Trail project will serve residents in downtown Nevada City, Grass Valley, and the rural vicinity (approximately 20,000 people), who would benefit from increased access to safe, usable greenspace on City lands in the Deer Creek corridor. The trail will function as a “sidewalk through the woods”, offering an important transportation alternative in a rural area that has developed an over-reliance on automobiles. The trail would also provide a scenic attraction to thousands of visitors who come to historic Nevada City each year. The Providence Mine site also offers one of the few public access points to Deer Creek in the Nevada City area.

The trail project is designed to specifically serve school children as a new and underserved population through an educational strategy which includes natural and cultural interpretive information on trails within walking distance of four elementary schools. Several of these schools, like Gold Run School and the Champion Mine School for disabled children, are named after area mines, and the interpretive trails will provide an important link to educate children about the California Gold Rush, Native American culture and practices, watershed ecology, and the problems of mercury, lead and other contaminants. Children from these schools will be able to walk to the trail, which can be used as an outdoor classroom for educational activities associated with the watershed. Friends of Deer Creek and other community groups will use the trails for educational programs that deepen students’ ecological understanding, foster their connection with local watersheds, and aid in developing their role as watershed stewards. The success of the Tribute Trail program depends on clean and safe open space for these recreational and educational activities, which will not be possible without funding for the proposed Brownfields Cleanup at Providence Mine. The developing brains of young children are especially susceptible to the neurotoxic effects of lead and other heavy metals.

ii) Health and Welfare of Sensitive Populations

The phase II Community-wide assessment, nearing completion, has revealed that the contaminant of greatest concern at the Providence Mine site is lead, present at extremely toxic levels in the immediate vicinity of the public trail that traverses the mine site. Lead poisoning remains a major environmental health problem in the United States, with the most common sources of contamination being paint, dust, and soil. Exposure occurs from breathing in lead-contaminated dust or putting hands or other objects covered in lead dust into the mouth. Lead poisoning can cause severe health effects including damage to the liver, kidneys, brain, nerves, bones, and blood. Children are at especially high risk. Toxic levels of lead can cause permanent learning disabilities, retardation and brain damage in young children. In adults, lead poisoning can cause high blood pressure and reproductive problems. In pregnant women, the fetus is particularly vulnerable to lead’s toxic effects (US EPA website). Lead contamination is commonly associated with abandoned gold mine sites. Exposure through the inhalation of contaminated dust is the primary health concern at Providence Mine, and is currently inhibiting the completion of the recreational trail development. Along with the high lead levels found at the site, arsenic and cadmium also occur at elevated levels, posing a further threat to human health. Arsenic is linked to several cancers, and also has severe short term health effects that may be felt within days of exposure. The acute effects of cadmium in humans through inhalation exposure consist mainly

of effects on the lung, such as pulmonary irritation. Chronic inhalation of, or oral exposure to, cadmium leads to a build-up in the kidneys that can cause kidney disease. The impact of these toxins is compounded by the extremely dry, dusty conditions that prevail throughout the long dry summers in the Sierra foothills, characterized by up to four months with no precipitation.

Children are a sensitive population affected by contamination in the project area. A total of 1,343 students from Nevada City and surrounding rural areas attend elementary schools in the project area each day. The Providence Mine Site is less than one mile from the elementary and middle schools in Nevada City. With the completion of the Tribute Trail through the Deer Creek watershed, school children are likely to use this trail as if it were a sidewalk to travel to and from school on a daily basis, increasing their potential exposure if the contamination is not addressed. As long as there is the risk of contamination, the educational benefit to the schools of having easy access to a new and extensive riverine trail system cannot materialize.

The project will also address the threat to health posed for fishermen accessing the creek across the mine tailings pile and consuming contaminated fish. In the course of a California Wellness-funded study performed by The Sierra Fund, it was learned that subsistence fishing is a way of life for some local people, who depend on the creek for access to their primary protein source. Subsistence fishermen include members of the local Tsi-Akim Maidu tribe, for whom fishing in the creek is an important element of tribal life. Low income groups and Hmong immigrants are also known to depend on locally-caught fish. Dust inhalation from fishing from contaminated mine tailing piles, and consumption of contaminated fish, together pose a health threat.

Nevada City's population is 3,001 (2000 Census data). Nevada City and many of the downstream areas that would benefit from mine cleanup are considered disadvantaged rural communities (US Census 2000 annual median household income (MHI) less than \$37,994 in CA). The MHI for the City of Nevada City is \$36,667. The unemployment rate in Nevada County is currently 11.4% (U.S. Bureau of Labor Statistics). The city of Nevada City is severely lacking in financial resources, resulting in staff layoffs and a mandatory furlough two Fridays per month in an effort to address the budget crisis. Efforts such as the proposed cleanup would be impossible without external funding, and future efforts to secure funding aimed at increasing greenspace and pedestrian access hinge upon a successful cleanup. Throughout the Community-wide Assessment, the city worked closely with the EPA Region 9 toxicologist and other scientists, who also guided the remediation plan and strongly encouraged us to address the contamination issue for the sake of protecting public health.

b) Financial Need

i) Economic Impact of Brownfield on Community

The Brownfield Cleanup, in tandem with the Tribute Trail project, will contribute to economic revitalization in the rural disadvantaged community of Nevada City by a) facilitating the walkability of the city and surrounding neighborhoods, decreasing dependence on automobiles for transport, and reducing carbon emissions, b) stimulating tourism and recreation-related spending and drawing people

to downtown Nevada City, c) supporting the community redevelopment plan, and d) improving property values and decreasing vagrancy in the project area.

a) Walkability and Reduction of Carbon Emissions. The Tribute Trail system includes two pedestrian bridges which will connect the many neighborhoods on River Right with Nevada City's business district on River Left, enhancing opportunities for pedestrian transportation. This trail will traverse the Providence Mine site, and will allow residents to access the grocery store, elementary and middle school and other services that are currently only accessible by a car bridge a mile upstream. The trail system will function as a sidewalk, making it possible to complete many more journeys on foot, thereby reducing the number of trips made by car and the emissions that go with them.

b) Tourism and Recreation. Nevada City is listed on the National Register of Historic Places and is considered to be among the best-preserved gold mining towns of the West. The economy relies heavily on tourism with sales tax revenue of \$1.167 million (2007-08, Nevada City clerk's office) contributing 30% of the city's budget. The Deer Creek Tribute Trail will contribute to the economic development of the community by stimulating tourism and recreation-related spending in the downtown area. The surrounding landscape already hosts some of the most outstanding and diverse recreational opportunities available. Situated next to the Tahoe National Forest in the Sierra Nevada foothills, the community is known for its mountain biking, kayaking and winter sports offerings. Visitors from all over the world stay in Nevada City on their way to and from recreational pursuits, enjoying the historical downtown area. The trail will run through downtown Nevada City along Deer Creek, which will foster substantial, sustainable economic activity for businesses located within the community. The trail's easy accessibility from Nevada City will provide tourists a recreational opportunity within walking distance from their lodging. The mystique of the California Gold Rush continues to exert a unique pull, and a trail that highlights mining features will be a highly desirable addition to the recreational attractions of the area. Signage along the proposed future trail will offer information about the area's mining history.

Nevada City's efforts to become an attractive destination include a full calendar of street festivals and events throughout the year. The Wild and Scenic Film Festival, the largest environmental film festival in the country, takes place annually in Nevada City at a variety of downtown venues. Christmas and summer street fairs, in which the entire downtown is closed to vehicle traffic, attract busloads of visitors from Sacramento and beyond. This year the city was honored to be chosen to host the opening stage of the annual Amgen Tour of California Bike Race, a professional cycling event that is expected to attract up to 30,000 visitors to the compact downtown area.

c) Consistent with Community Redevelopment Plan. The City of Nevada City is currently developing a community redevelopment plan to explore possibilities for promoting the downtown area. The City of Nevada City recognizes the benefits of the Deer Creek Tribute Trail for the community. The trail is consistent with the mission of supporting the environment in order to improve business and community life.

d) Revitalize Neighborhoods. The small town of Nevada City consists of a compact and beautifully restored downtown, with surrounding neighborhoods being a mixture of pockets of high density single

family homes along with low density housing. Present amongst the neighborhoods and throughout the town are random piles of toxic waste that were abandoned decades ago in the course of mining operations. The proposed project revitalizes a rural area just downstream of downtown Nevada City that has been used as a dumping site and a camping spot for transients who have in the past started fires in the canyon. The Deer Creek Tribute Trail project will clear dense brush, clearly mark trails and private property, provide neighborhood oversight and river clean-ups, and reduce the threat of wildfire. In addition, the Deer Creek trail will enhance walkability and fitness and health opportunities for the community of Nevada City through the addition of accessible greenspace. According to a 2002 survey of recent home buyers sponsored by the National Association of Realtors and the National Association of Home Builders, trails ranked as the second most important community amenity out of a list of 18 choices.

The state of California is currently suffering a severe fiscal crisis and has frozen its bond-funded grants. All groups and agencies that relied on state funding as part of their budget have been affected as a result, including the City of Nevada City and project partner Friends of Deer Creek. The freeze is now partially lifted, but current grants will restart on a limited basis and new grants are far from certain. The ripple effect of decreased state funding and the plunging value of investments has likewise impacted private foundations, who are needed more acutely than ever and whose resources have been similarly impacted. These factors have made the funding environment much more competitive and have greatly impacted our ability to access grant funds. The impact of the state funding freeze on local government's ability to respond to grant opportunities makes the need to form partnerships with community groups an imperative. This proposal is an example of such a partnership.

The EPA has already invested significant funds in the assessment of this Brownfield site as part of the City of Nevada City Community-Wide Assessment, and the funding of a cleanup of the site would be an appropriate next step to realize the value of the original investment.

2. Project Description and Feasibility of Success

a) Project Description

Site History:

Providence Mine is an abandoned gold mine located on city property within the Sierra Nevada foothills town of Nevada City. Once a thriving industrial operation with a large complex of buildings, little trace is now evident and many local residents have no idea of the existence of one of the largest hard rock mining operations in the region. Looking closer however, the legacy of Nevada City's mining past is all too evident in the form of pervasive heavy metal contamination, vast piles of waste rock and mine tailings, severe degradation of the Deer Creek watershed on which the community depends for its drinking water supply, and hidden among the forest that has reclaimed the land, the crumbling remains of old mine buildings that were constructed from contaminated materials.

With the decline of the gold mining industry in the 1950s, Nevada City has evolved to embrace its rich history and natural beauty, and has become a destination for thousands of visitors every year.

Development pressures throughout California are felt here too: as land is bought up and subdivided, the need to preserve open space for the increasing population becomes more urgent. Often, land is available as public space only because it is unsuitable for development, whether because the terrain is too rugged or because past uses have left it too contaminated for residential development. Providence Mine is such a site: located on 45 steep and heavily forested acres owned by the city within a half mile of the historic downtown, the property is used by the public for hiking, biking, and creek access. A proposed new trail system will formalize the unofficial trails that cross the mine site and will incorporate them into a nine mile trail loop that begins downtown. The development of the trail loop will bring an increase in the number of trail users and with it an increase in exposures to the contaminants that continue to impact the area.

i. Describe project

Site Description:

The Providence Mine site consists of the remains of the mine operation, including the remains of the walls and buildings, the mine shaft, and vast piles of waste rock and mine tailings. (This part will be customized in each proposal for 1) the mining relics area and 2) the mine tailings pile.) The goal of this cleanup project is to make recreational use of the Providence Mine site safe, healthy and enjoyable and to restore the site to viable green space to be used by the community for generations to come. Nevada City has based its economy to a large extent on tourism and recreation. The mining history of the area is a considerable draw to visitors. The trail that runs through the Providence Mine site will be potentially highly used, located as it is close to the historic downtown, connecting to a much larger trail system already under construction, a short walk from the middle and elementary schools, and including points of historical interest.

Previous Studies and Contamination Findings:

The EPA Brownfields-funded Community Wide Assessment begun in 2006 was performed by scientists from Friends of Deer Creek using a sampling plan developed in collaboration with US EPA Region 9 scientists. The assessment demonstrated that the Providence Mine site is contaminated with arsenic, cadmium and lead, with lead levels being the highest and driving the cleanup recommendations. The Decision Rule was determined using a recreational use scenario and largely follows the EPA PRG for residential soils and the California Human Health Safety Level (CHHSL). The exception to this is arsenic, which is commonly found in Sierra soils at levels of 20-30ppm or higher. Although the PRG for arsenic is 0.06 ppm and CHHSL is 0.07 ppm, the Decision Rule set for arsenic of 22ppm takes into consideration the unique geology of the foothills. The Decision Rule for lead is 150ppm, and for cadmium is 1.7ppm.

A total of 73 samples were obtained from the Providence Mine site. 17 surface samples (0-6" depth) were taken from the trail that goes through the mine feature area at 44' intervals. Seven surface samples were taken in the mine feature area and ten surface samples were taken from the surrounding property. A total of 33 samples were taken from the waste rock pile, 22 of them being surface samples. Under a plan approved by the EPA the samples were sent to ALS, a commercial lab, and retested at an EPA certified lab if the ALS results indicated a concentration above the Decision Rule.

The following section will be customized for each proposal: Along the trail, in the mine features area, arsenic levels were not considered to be of concern, but 8 out of 17 samples were over the Decision Rule for lead, with the highest value being 6700ppm, and an average of 563.6ppm and median of 140ppm. 7 of the samples exceeded the Decision Rule for cadmium, with a high of 13ppm, average of 3.53ppm and median of 1.6ppm. The majority of the exceedances occurred in the first 166' of the trail, in the immediate vicinity of the mine. The mine feature area had elevated levels of arsenic, lead and cadmium, especially in the crumbling wall of old foundations and in the mine waste piles adjacent to the shaft. The large waste rock pile adjacent to the creek revealed high levels of all three constituents of concern, with lead levels at a maximum of 550ppm. 27 out of 29 samples taken from the waste rock pile were high in lead. The waste rock pile is over 300' long and highly prone to erosion. Eroded material from the pile enters the creek, contaminating the water and harming the fish and other wildlife. Fishermen who cross the tailings pile to access the creek are exposed to contamination in the form of high levels of dry, toxic dust.

ii. Describe Cleanup Plan and Potential End Use

Cleanup Plan:

This section will be customized for each proposal: This project will implement the recommendations outlined in the Phase II Final Report completed as part of the Brownfield Community-wide Assessment Grant awarded to the City of Nevada City in 2006. The recommendations of this report include four types of activities: limiting contamination from the remaining mine features through removal, capping or fencing of contaminated material; terracing and revegetating the mine tailings pile along the creek to prevent erosion; extracting the heavy metals through a process of bioremediation or on-site physical extraction methods by third party contractors; and completing an official public walking trail through the site.

In order to eliminate exposure to heavy metals, the waste rock pile will be terraced and vegetated in order to reduce the slope and eliminate the potential for erosion into the creek. Informal access to the creek over the waste rock pile by anglers will be stabilized with construction of a gently sloped path. The use of hydroseeding or other methods to accelerate plant growth will reduce the extent of erosion and contamination during construction. Areas of contamination that cannot be removed, such as historical cement foundations, will be fenced off or planted with native poison oak to avoid contact by recreational users. Interpretive signs that explain the dangers and the historical significance of abandoned mine sites will be posted along the perimeter of the fenced area. In order to eliminate exposure to dust, the trail surface will be sealed by capping it with 4" of gravel or cleanfill. The most heavily contaminated trail sections will be rerouted away from the mining features area and the old trail blocked to prevent access. However, the historical significance of the site and the fact that the trail through the mine site is already heavily used, necessitates where possible the remediation of the existing trail to the point where it no longer poses a health and safety risk to users. Planting with species that are known to absorb the target contaminants, a process known as bioremediation, will be performed in selected areas of high contamination. The plants will subsequently be harvested and disposed of as hazardous waste.

Engineering controls would include bank sloping and stabilization, grading, capping, and revegetation. Native vegetation will be used to stabilize the banks and reduce erosion into Deer Creek. Possible plants include wild grape and willow. City and County specifications for grading will be used. Following cleanup activities, confirmation samples will be collected to ensure that cleanup levels proposed in the Action Plan have been reached. Remediation actions will be documented and an Action Completion Report prepared.

Proposed End Use:

The Providence Mine site is planned to be included as part of the nine mile Tribute Trail system, currently being developed with funding from California Resources Agency and from the Sierra Nevada Conservancy. The trail will begin in the downtown area, following the course of Deer Creek along both banks across private and public lands for a total of nine miles. The Providence Mine site is a large, forested, publicly owned property along Deer Creek close to downtown that is currently in use for hiking and fishing access. Including Providence Mine in the Tribute Trail system will greatly increase the extent of the trail by connecting River Left roads and trails to downtown. Although Nevada City was founded on the banks of Deer Creek, public access to the creek is very limited and many residents are unaware of its existence. The large creekside parcel on which Providence Mine sits would offer plentiful creek access a short walk from downtown. As well as providing access to the creek, development of the Providence Mine trails would open up an under-used public treasure, owned by the city for decades but with limited public access or awareness of its existence. Indeed, access to the trails in the property currently involves trespassing on private land. Parts of the trail are steep and eroded, and some sections cross areas of severe mining contamination. A vital step in connecting River Left trails with the River Right trail currently in development is the remediation of the worst-afflicted sections of the Providence Mine site, in order to protect public health in the face of a large increase in exposures to mining contamination as the trail system becomes more heavily used. Indeed, at least a portion of the River Left funding is likely to be contingent on a successful cleanup of the Providence Mine site.

The existing informal trail in the site connects by a short spur trail to local elementary and middle schools. The spur trail is on land that is privately owned by an engineering firm, and there are plans to open up public access to the trail. When the trail connection to Providence Mine is complete, local school children will use the trail to walk to school, and will have the opportunity to walk from school to the creek and to the mining features, allowing them to access the creek and surrounding woodland as an outdoor classroom. The school cross country team will make use of the trail for training.

The Providence Mine site provides visitors with a remarkably vivid lesson in the recent and ancient history of our town. As well as interpretive signage explaining the importance of Providence Mine in the economic development of Nevada City, there are also many old rock walls still standing, evidence of the vital construction role played by Chinese workers during the Gold Rush. Moreover, the local Tsi-Akim Maidu tribe plans to do a pilot restoration project in the forest surrounding the mine, providing an opportunity to learn about the forest management practices of the indigenous people, successful stewards of the watershed for ten thousand years.

b) Budget for EPA funding and Leveraging Other Resources

i. Budget. Include narrative description of each task

Task 1: Program Management

This task focuses on ensuring that the project is tightly managed to meet its goals and objectives and includes those tasks that are directly associated with the management of the project. This task includes project reporting, including progress and financial reporting, regular communication and quarterly project team meetings involving City of Nevada City, Friends of Deer Creek (FODC), and the Bureau of Land Management (BLM). In addition, the City of Nevada City, as the lead fiscal agent, will manage all contracts.

- 1.1 Finalize work plan
- 1.2 Develop scopes of work and contracts for each project partner
- 1.3 Provide quarterly progress and financial reports
- 1.4 Convene quarterly project team meetings

Deliverables: Final Work plan
Contracts with each project partner
Quarterly Progress Reports
Quarterly Financial Reports
Minutes from Team Meetings

Task 2: Strengthen local partnerships between community residents, watershed organizations, local governments and agency experts

A series of public meetings will be held with project collaborators, including neighborhood associations, local watershed and resource protection organizations and other community members to ensure community understanding and support, and incorporate input. In addition, we will work to strengthen our existing partnerships with state and federal agencies such as the Department of Toxic Substances Control, Department of Conservation, US EPA, Bureau of Land Management, the Regional Water Quality Control Board, as well as the Nevada County Planning Department.

- 2.1 Prepare Project Briefing Material Including Heavy Metal Contamination Data
- 2.2 Prepare Project Map
- 2.3 Conduct planning meetings with community and agency partners
- 2.4 Collect technical information and lessons learned in other mine cleanup projects from specialist collaborators.

Deliverables: Briefing Material
Map of Site
Summary Describing Outcomes of Public Meetings

Task 3: Remediation Options Analysis, Clean-Up Design and Environmental Permits

Building on the results of the assessment, Task 3 will focus on analyzing remediation options, incorporating community and specialist input, and designing appropriate clean-up plans, including methods to stabilize or remediate the mine site, to stabilize the banks using soil-bioengineering solutions, and to remove hazardous contamination using a physical or biological extraction method.

- 3.1 Review restoration and clean-up options
- 3.2 Draft Environmental Permitting Documents for CEQA
- 3.3 Conduct public meeting to acquire input
- 3.4 Finalize Environmental Permitting Documents

Deliverables: Briefing Document Describing Remediation Options
Final Remediation Plan CEQA ready

Task 4: Implement Site Remediation

This task includes the bulk of the work to be conducted on site. The remediation plan will be implemented under this task, and will likely include removal of hazardous waste, capping of exposed waste, trail re-routing and construction, bank stabilization and re-vegetation, and bioremediation of heavy metals.

- 4.1 Train workers on Health and Safety Issues
- 4.2 Photo log of remediation efforts in progress
- 4.3 Sampling to determine effectiveness of site remediation

Deliverables: Report on results of reduced exposure to toxins
Worker Health and Safety Plan
Site Use Plans
Report on results from physical or biological pilot removal effort

Task 5: Measuring Project Impact

Under this task, we will determine the number of acres made ready for re-use by the impacted communities and neighborhoods, the number of jobs and other funding leveraged through the economic re-use of this site, the number of acres of greenspace created, etc.

- 5.1 Summarize economic impacts of land re-use
- 5.2 Produce a final report on lessons learned

Deliverables: Land Use Map
Site Layout Maps
Final Report

Budget Categories	Project Tasks					
(programmatic costs only)	Task 1 Program Management	Task 2 Strengthen Local Partnerships	Task 3 Remediation Options Analysis	Task 4 Implement Site Remediation	Task 5 Measuring Project Impact	TOTAL
Personnel	\$5,000	\$1,000	\$2,000	\$2,000	\$2,000	\$12,000
Fringe Benefits						
Travel			\$1,000	\$2,500	\$500	\$4,000*
Equipment				\$8,000		\$8,000
Supplies				\$10,000		\$10,000

Contractuals		\$5,000	\$25,000	\$126,000	\$10,000	\$166,000
Other (specify)						
Total	\$5,000	\$6,000	\$28,000	\$148,500	\$12,500	\$200,000
Cost Share			\$10,000	\$20,000	\$10,000	\$40,000

*Budget for travel to EPA regional grantee and national Brownfields conferences, and for mileage reimbursement for site visits.

ii. Leveraging.

Other Funding Sources:

Once the cleanup of the brownfield is accomplished, the revitalization of the site will be made possible with funding already secured from the California Resources Agency, the Sierra Nevada Conservancy, and FEMA. These three grants, totaling almost \$1.2million, will be used to construct the nine mile loop trail in the Deer Creek watershed; to remove non-native vegetation and to replant from the native palette; to implement fire-safety measures by removing ladder fuels; to restore floodplain connectivity to a stretch of the creek in the vicinity of the Providence Mine site where massive tailings and waste rock piles have altered the creek's hydrology and caused it to incise deeply; to construct pedestrian bridges connecting the river right trail with inaccessible publicly owned land on river left; and to monitor the impacts on the health of the creek. This tremendous infusion of funding into the watershed is a testament to the collaborative spirit of the city of Nevada City working with community groups to accomplish the restoration of our natural treasures and their return to public use. At least a portion of the Sierra Nevada Conservancy funding of the River Left trail portion is likely to be contingent on the success of the proposed cleanup effort.

c) Programmatic Capability

i. Currently or has ever received a Brownfields Grant

In 2006, Nevada City received a Brownfields Assessment grant for city owned abandoned mines in the Deer Creek watershed. The grant term ends in November 2009. The city has been diligent in meeting all grant reporting requirements, including financial and progress reporting and all required submittals. The work has been completed in accordance with the work plan and schedule.

The Brownfield assessment has been successful in its goal of determining the extent and nature of contamination at the targeted city-owned abandoned mine sites. Three sites for which assessments have been completed have revealed contamination by mining-associated heavy metals at levels that are in excess of EPA-established safe limits, and that indicate the necessity of cleanup in order to allow reuse of the sites for recreational purposes. The project included public outreach efforts, including a community forum to discuss possible cleanup strategies. In September 2009 the city hosted a day-long meeting with scientists from the US EPA, BLM, State Water Board, DTSC, Nevada County Environmental Health Department, Friends of Deer Creek, The Sierra Fund, American Rivers, and local engineering firm Holdredge and Kull, in an effort to determine appropriate remediation strategies. As a group, the scientists reviewed the Community-wide Assessment data, toured each assessed site, and brainstormed

possible actions that could be included in a cleanup plan. Their recommendations are included in the current proposal.

- Staff Expertise/Qualifications

The City of Nevada City is a small city that enjoys successful working relationships with local non-profits to complete projects. The City has over 150 years of experience managing projects for the public. Nevada City will act as fiscal agent and project liaison with EPA, and will contract out all scientific project work. The City of Nevada City has successfully participated in numerous Federal funding programs. The City has completed two very important mutually beneficial land exchanges with the Federal government, one with the U.S. Post Office and one with the Tahoe National Forest. They have had several loans for water plant and wastewater plant improvements through the Federal U.S.D.A. loans, including a number still active.

The City has completed a successful US EPA Brownfields-funded Community-wide Assessment of abandoned mines on city-owned land, and has forged a highly successful collaboration with local watershed groups and county, state, and federal agencies to create a cleanup plan of the affected properties. The City has been committed to ensuring work is completed on time, reports are finished in a timely manner and finances are used appropriately. The City has a similar collaborative relationship with the Nevada County Land Trust on a trail and other projects.

The organizational structure of the City includes a Finance Manager, Senior Clerk, and Parks and Recreation Supervisor, who work together to ensure the successful completion of projects, including the Brownfields Assessment Grant, a REACH program grant for our youth program, and The Tribute Trail Project on City property.

- Adverse Audit Finding

The City has never had a negative audit or defaulted on any loans, and maintains effective fiscal controls on all its funds.

3. Community Engagement and Partnerships

a. Plan for engaging the affected community:

The local community has been involved since the project's inception in 2005 with the proposed reuse of the Providence Mine site as a recreational interpretive trail. Trail construction will be accomplished using volunteer labor organized under the Tribute Trail Association. Clean up plans and implementation will be communicated to the public regularly at city council meetings and by means of quarterly announcements through neighborhood association networks, informational pieces in local newspapers and community networks. The city will work with scientists from Friends of Deer Creek, a community-based scientific monitoring and watershed restoration group in Nevada City. Friends of Deer Creek combines scientific expertise with a high degree of community support from property owners along Deer Creek, many of whom live in the vicinity of Providence Mine and have a strong stake in the project's success.

b. Partnerships with local/tribal/state environmental and health agencies:

Tsi-Akim Maidu Tribe: The Tsi-Akim Maidu tribe is a project partner on the Sierra Nevada Conservancy-funded Tribute Trail project, which targets the left bank of Deer Creek including the Providence Mine site. The role of the tribe in this project is to guide the revegetation effort, drawing from their ancient knowledge of native flora and fauna, and to develop interpretive signage that educates trail users on the ten thousand year history of the tribe in the Deer Creek watershed

DTSC: The city of Nevada City will partner with the DTSC to ensure an appropriate cleanup of the site. DTSC staff have been involved in the assessment phase of this Brownfields project and contributed expertise to the development of the Action Plan

c. Community-based organizations involved in the project:

Friends of Deer Creek

Joanne Hild, Executive Director

(530)265-6090, joanne@friendsofdeercreek.org

Friends of Deer Creek (FODC) is a community-based non-profit that works with community members on scientific studies and monitoring, ecological restoration and education to protect and improve the Deer Creek watershed. The organization's mission is to promote community stewardship and to advance scientific knowledge of the Deer Creek watershed through research, planning, restoration and education, for the benefit of the entire Sierra Nevada region and beyond. More information is at www.friendsofdeercreek.org. Four of the board members live in Nevada City, two in the immediate vicinity of the Providence Mine site. FODC scientists and volunteers have monitored the creek in the Providence Mine area for nine years, and performed the Phase II Brownfields Assessment under contract with the city of Nevada City. As a community-based organization, they are able to combine the scientific expertise with the community outreach necessary for successful project completion. FODC is the city's primary partner in the implementation of cleanup and restoration activities.

Greater Champion Neighborhood Association

Eric Jorgenson, President

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The Greater Champion Neighborhood Association (GCNA) is a network of homeowners and residents in the Champion Mine/Champion Rd area, one of the principal neighborhoods affected by historic mining in Nevada City. The Association works on resource issues affecting their neighborhood, including a fire plan, neighborhood cleanups, and plans for the Tribute Trail, currently under construction. GCNA will assist with community outreach using their established communication network with residents in the project vicinity.

Nevada County Land Trust

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The Nevada County Land Trust is a local non-profit organized to preserve land for natural, recreational, scenic, agricultural, historical, cultural, educational and scientific purposes. It acquires and manages land, conservation easements, and trails to protect Nevada County open space. The Land Trust has been instrumental in the construction and design of the Tribute Trail. The Land Trust will provide trail construction expertise for the rerouted trail sections.

4. Project Benefits

a. Welfare and/or Public Health

Cleanup of the Providence Mine site will protect recreational users of the area from incidental exposure to a host of toxic contaminants, in particular lead, but also arsenic and cadmium. The Gold Rush that devastated the native people of the Sierra Nevada also caused massive environmental destruction that continues to impact the Sierra today. Mining practices commonly included extensive use of mercury; abandoned mines left behind toxic pits and acid mine drainage; naturally occurring toxins including lead, arsenic and asbestos were dug up, brought to the surface, and distributed around the region, scattered in piles or used in construction. These toxins are readily breathed in as dust particles. While the human health problems resulting from exposure to these toxins are well known, specific epidemiological studies of the health impacts in our local area have not been studied or quantified, and local clinics do not collect environmental health histories from their patients.

With the recent boom in development in the Sierra, what was once remote is no longer. The population of the Sierra Nevada more than doubled between 1970 and 1990, and it is forecast to triple from 1990 to 2040. This rapid population growth has resulted in a dramatic change in the social, demographic, and economic characteristics of this rural area. At the same time, abandoned mines have by default become the region's principal greenspace for the expanding population, since their toxic legacy has made them unsellable as private land and unsafe for development. It is a matter of paramount public health importance that greenspace be made safe for recreational use.

Over the last decade, Nevada City has taken steps toward town-centered planning and is on the way towards being a model for an alternative development path that rejects sprawl and instead delineates a sharp dividing line between the concentrated areas where residents live, work and do business, and the surrounding rural and wilderness areas. There has been, however, one crucial element missing from Nevada City's progressive planning efforts: integrating its downtown historic and economic area with the surrounding natural features, including Deer Creek. Faced with intense growth pressures, Nevada City has a narrow window of opportunity to designate and link greenspace areas, before the opportunity for connecting these areas disappears – and to do it in a way that protects the health of residents and visitors.

The Tribute Trail, when complete, will link to neighborhoods and schools to provide opportunities for residents to bike and walk to work and school. Using existing trail segments a proposed trail connection to Seven Hills Middle School will be accomplished. The trail will be approximately ½ mile long from the Rough and Ready Ditch, just above Providence Mine, to the school. When this connection is made, it will be possible to connect to additional trails that the Nevada County Land Trust is working on extending to Seven Hills School. As the trail begins to link to other trails in the area, it can be used as an alternative bicycle and pedestrian transportation route. With the development of other trails in the vicinity, school children are already using the informal trails in the Providence Mine area, and putting their health at risk by inhaling contaminated dust.

Sensitive populations, in particular the school children in the vicinity of the project area, will be protected during the implementation of the Action Plan by the inclusion of safety measures as outlined in the Plan. Dust, the primary means of accidental ingestion of lead, will be minimized by performing hotspot removal during wet weather and by the use of erosion control blankets.

b. Economic Benefits and/or Green space

i. Economic Benefits:

The development of the Tribute Trail will confer economic benefits by enhancing the recreational appeal of Nevada City, which is heavily dependent on tourism. Nevada City is a meticulously restored Gold Rush town built on the banks of Deer Creek in the Sierra Nevada foothills. The development of the Tribute Trail, of which Providence Mine is a part, will bring hiking opportunities and river access to the downtown area. Currently, visitors to Nevada City must drive a distance of five or more miles to reach the hiking trails and river access of the South Yuba River. Economic benefit to the stores in the downtown area will result from the increased pedestrian traffic that will result from the improved connections between neighborhoods in the trail vicinity.

ii. Non-economic Benefits (Greenspace):

Nevada City currently has a critical lack of usable greenspace. At present, the river frontage is not used at all because there is no access, despite the fact that the creek runs through the center of town. Indeed, given that Nevada City's original name was "Deer Creek Dry Diggins", it is a remarkable fact that most residents and visitors have never visited the creek in their midst. Currently the only publicly accessible open space land within walking distance of Nevada City is the nine acre Pioneer Park. The proposed reuse of the Providence Mine Brownfields site addressed in this proposal is as public open space, made accessible through the pending Deer Creek Tribute Trail Project. This project would add access to 48 acres of creek frontage land owned by the City of Nevada City (the Environs) within a half mile of the downtown, and a further 91 acres of riparian BLM land for a total of 139 additional acres of developed recreational public land. In addition, the trail would provide access across two large private parcels currently not accessible (one 25 acre parcel and one 86 acre parcel). A plan for long-term management and care of the Deer Creek Tribute Trail has been developed through an Adopt-a-Trail program and special maintenance workdays organized by the Nevada County Land Trust. The City's

parcel addressed by the proposed cleanup is zoned for open space, and development of recreational access will help ensure its permanent protection. Cleanup of the Brownfield site at Providence Mine will ensure that the greenspace is safe to use for recreation.

Other non-economic benefits that will ensue from the successful implementation of the proposed cleanup include the decrease in the threat to public health that is currently a reality for recreational users of the land affected by abandoned mines. With reduced erosion of contaminated waste rock into the creek, and eliminated exposure to toxic dust, the public can safely enjoy the trails on public land for hiking, traveling to school, work and errands, biking, and fishing.

c. Environmental Benefits from Infrastructure Reuse/ Sustainable Reuse:

The proposed Deer Creek Tribute Trail will build and link trails on existing historic canals and some existing roads. Reuse of the canals minimizes erosion from hillside disturbance for trail construction and has the added benefit of allowing American Disability Act (ADA) accessibility to 70% of the proposed trails. A pedestrian bridge over Deer Creek will reuse existing bridge abutments. The historic Rough and Ready and Newtown water supply ditches will be linked to low-traffic streets and the town center, creating a nine mile loop trail with historical and ecological significance. The trail will allow access to approximately 139 currently inaccessible acres of public land as greenspace, as well as a new right of way across 111 acres of private land.

There are no buildings associated with the Tribute Trail reuse project. However, the project plan includes green design features such as trail construction with grade dip drainage to prevent erosion, use of recycled materials for benches and tables, and restoration with native plants, increasing ecosystem health and diversity.

d. Tracking and Measuring Progress Toward Expected Project Outcomes:

Task 1 is focused on ensuring that the project is tightly managed to meet its goals and objectives and includes those tasks that are directly associated with the management of the project. This task includes project reporting, including progress and financial reporting, community notification, regular communication and quarterly project team meetings (City of Nevada City, Friends of Deer Creek (FODC), DTSC, and the Bureau of Land Management (BLM) in an advisory role). The City will provide quarterly progress reports to their EPA project manager describing activities completed during the preceding quarter, issues and problems encountered, and activities planned for the coming quarter.

Task 5 is dedicated to tracking and measuring progress towards project goals. Specifically, the number of acres made ready for re-use, the number of jobs and other funding leveraged through the economic re-use of this site, and the number of acres of greenspace created will be measured at the end of the project and presented in a report of lessons learned. The outcome of the cleanup project will be communicated to the public.